<u>Amendments to the Claims</u>:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method to create and acoustically manipulate a microbubble within a volume of material, the method comprising:

propagating at least one laser pulse through the material to create a microbubble within the material; [[and]]

propagating at least one acoustic wave through the material to exert a radiation force at an exterior surface of the microbubble to controllably manipulate the microbubble and displace a central portion of the microbubble within the material without causing the destruction of the microbubble<u>; and</u>

<u>measuring elasticity of material in contact with the microbubble based on movement of the microbubble</u>.

2. (Original) The method as claimed in claim 1, wherein the at least one laser pulse is an ultrafast laser pulse and wherein the microbubble is created via laser induced optical breakdown (LIOB) with little or no change to material immediately adjacent to the microbubble.

3. (Canceled)

4. (Original) The method as claimed in claim 1, wherein the at least one acoustic wave includes an ultrasound wave.

5. (Previously Presented) The method as claimed in claim 4, wherein the ultrasound wave exerts a substantially continuous radiation force at the surface of the microbubble.

6. (Previously Presented) The method as claimed in claim 4, wherein the ultrasound wave exerts a pulsed radiation force at the surface of the microbubble.

7. (Previously Presented) The method as claimed in claim 1, wherein the at least one acoustic wave exerts a radiation force between $1x10^{-9}$ Newtons and $1x10^{-6}$ Newtons at the surface of the microbubble.

8. (Previously Presented) The method as claimed in claim 1, wherein the at least one acoustic wave exerts a radiation force between $1x10^{-12}$ Newtons and $1x10^{-15}$ Newtons at the surface of the microbubble.

9.-12. (Canceled)

13. (Previously Presented) The method as claimed in claim 1, wherein the step of propagating the at least one acoustic wave causes the microbubble to mix the material.

14. (Original) The method as claimed in claim 1, wherein the microbubble is a nanobubble.

15. (Original) The method as claimed in claim 1, wherein the step of propagating the at least one acoustic wave causes the microbubble to manipulate at least one structure in contact with the microbubble.

16.-17. (Canceled)

18. (Original) The method as claimed in claim 1, wherein the at least one laser pulse is a femtosecond laser pulse.

19. (Original) The method as claimed in claim 1, wherein the microbubble has an optical refractive index different from an optical refractive index of the material and wherein the method further comprises propagating a beam of light through the microbubble.

20. (Previously Presented) The method as claimed in claim 2, wherein the step of propagating the at least one laser pulse also creates at least one acoustic shock wave via LIOB.

21. (Currently Amended) A system to create and acoustically manipulate a microbubble within a volume of material, the system comprising:

a pulsed laser for generating at least one laser pulse;

an optical subsystem for directing the at least one laser pulse to the material wherein the at least one laser pulse propagates through the material to create a microbubble within the volume of material; [[and]]

an acoustic source for directing acoustic energy to the material wherein at least one acoustic wave propagates through the material to exert a radiation force at an exterior surface of the microbubble to controllably manipulate the microbubble and displace a central portion of the microbubble within the volume of material without causing the destruction of the microbubble; and

an imaging subsystem to measure elasticity of material in contact with the microbubble based on movement of the microbubble.

22. (Canceled)

23. (Original) The system as claimed in claim 21, wherein the source is an ultrasound source and wherein an ultrasound wave is propagated in a direction through the material and wherein the microbubble moves in the direction of the ultrasound wave.

24.-26. (Canceled)

27. (Original) The system as claimed in claim 21, wherein the at least one acoustic wave includes an ultrasound wave.

28. (Previously Presented) The system as claimed in claim 27, wherein the ultrasound wave exerts a substantially continuous radiation force at the surface of the microbubble.

29. (Previously Presented) The system as claimed in claim 27, wherein the ultrasound wave exerts a pulsed radiation force at the surface of the microbubble.

30.-35. (Canceled)

36. (Original) The system as claimed in claim 21, wherein the microbubble is a nanobubble.

37.-39. (Canceled)

40. (Original) The system as claimed in claim 21, wherein the at least one laser pulse is a femtosecond laser pulse.

41.-43. (Canceled)

44. (Previously Presented) The method of claim 1 wherein the at least one acoustic wave is generated external to the material.

45. (Previously Presented) The system of claim 21 wherein the acoustic source is external to the material.

46. (Currently Amended) A method to create and acoustically manipulate a microbubble within a volume of material, the method comprising:

propagating at least one laser pulse through the material to create a microbubble within the material; [[and]]

propagating at least one acoustic wave through the material to exert a radiation force at an exterior surface of the microbubble to controllably manipulate the microbubble and displace a central portion of the microbubble within the material without causing the destruction of the microbubble by the propagating of the at least one acoustic wave; and

measuring elasticity of material in contact with the microbubble based on movement of the microbubble.